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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Chilimbi et al.

Application No. 10/737,205

Filed: December 15, 2003

Confirmation No. 7671

For: CACHE-CONSCIOUS COALLOCATION
OF HOT DATA STREAMS

Examiner: Not yet assigned

Art Unit: 2186

Attorney Reference No. 3382-66145-01

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Attorney or Agent
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Date Mailed November 14, 2005

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Listed on the accompanying form PTO-1449 and enclosed herewith are several English-language documents. Applicants respectfully request that these documents be listed as references cited on the issued patent.

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The filing of this IDS shall not be construed to be an admission that the information cited in the statement is, or is considered to be, prior art or otherwise material to patentability as defined in 37 C.F.R. §1.56.

Respectfully submitted,

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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First Named Inventor	Chilimbi
Art Unit	2186
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U.S. PATENT DOCUMENTS

Copies of U.S. Patent documents do not need to be provided, unless requested by the Patent and Trademark Office. For patents, provide the patent number and the issue date. For published U.S. applications, provide the publication number and the publication date. For unpublished pending patent applications, provide the application number and the filing date.

Examiner's Initials*	Cite No. (optional)	Number	Publication Date	Name of Applicant or Patentee
		6,360,361	3/19/2002	Larus et al.
		6,330,556	12/11/2001	Chilimbi et al.
		6,321,240	11/20/2001	Chilimbi et al.
		5,940,618	8/17/1999	Urquhart et al.
		2005/0091645	4/28/2005	Chilimbi et al.
		2004/0103408	5/27/2004	Chilimbi et al.
		2004/0103401	5/27/2004	Chilimbi et al.
		2004/0025145	2/5/2004	Dawson
		2002/0144245	10/3/2002	Lueh
		11/134,812	5/20/2005	Ganapathy et al.
		11/134,796	5/20/2005	Shankar et al.
		11/115,924	4/26/2005	Chilimbi et al.

OTHER DOCUMENTS

Examiner's Initials*	Cite No. (optional)	Ammons et al., "Exploiting Hardware Performance Counters with Flow and Context Sensitive Profiling", PLDI (June 1997), 12 pages.
		Ammons et al., "Improving Data-Flow Analysis with Path Profiles," SIGPLAN '98 (1998), pages 72-84.
		Anderson et al., "Continuous Profiling: Where Have All the Cycles Gone?", ACM (November 1997), pages 357-390.

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Examiner's Initials*	Cite No. (optional)	OTHER DOCUMENTS	
		Annavaram et al., "Data Prefetching by Dependence Graph Precomputation", IEEE (2001), pages 52-61.	
		Arnold et al., "A Framework for Reducing the Cost of Instrumented Code", <i>Rutgers University Technical Report DCS-TR-424</i> (November 2000), pages 1-10.	
		Bala et al., "Dynamo: A Transparent Dynamic Optimization System", ACM (2000), pages 1-12.	
		Balakrishnan et al., "Analyzing Memory Accesses in x86 Binary Executables", <i>Proc. 13th Intl. Conference on Compiler Construction</i> , LNCS 2985 (April 2004), pages 5-23.	
		Ball et al., "Efficient Path Profiling", IEEE (1996), pages 46-57.	
		Bush et al., "A Static Analyzer for Finding Dynamic Programming Errors", <i>Software: Practice and Experience</i> (2000), pages 775-802.	
		Cahoon et al., "Data Flow Analysis for Software Prefetching Linked Data Structures in Java", IEEE (2001), 12 pages.	
		Chen et al., "Reducing Memory Latency via Non-Blocking and Prefetching Caches", ACM (1992), pages 51-61.	
		Chilimbi et al., "Dynamic Hot Data Stream Prefetching for General-Purpose Programs", ACM (2002), 11 pages.	
		Chilimbi et al., "Low-Overhead Memory Leak Detection Using Adaptive Statistical Profiling", <i>Proc. 11th Intl. Conference on Architectural Support for Programming Language and Operating Systems (ASPLOS)</i> , (October 2004), pp. 156-164.	
		Chilimbi et al., "Using Generational Garbage Collection to Implement Cache-Conscious Data Placement", <i>Proceedings of the First International Symposium on Memory Management</i> (Oct 1998), Vol. 34(3), pages 37-48.	
		Cooksey et al., "A Stateless, Content-Directed Data Prefetching Mechanism", ACM (2002), pages 279-290.	
		Cowan et al., "Buffer Overflows: Attacks and Defenses for the Vulnerability of the Decade", <i>DARPA information survivability conference and expo (DISCEX)</i> (2000), pages 1-11.	
		Dean et al., "ProfileMe: Hardware Support for Instruction-Level Profiling on Out-of-Order Processors", <i>Proc. 30th Annual Intl. Symp. On Microarchitecture</i> (Dec 1997), 12 pages.	

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		Deaver et al., "Wiggins/Redstone: An On-line Program Specializer", <i>Proceedings of the IEEE Hot Chips XI Conference</i> (August 1999), 29 pages.	
		Demsky et al., "Automatic Detection and Repair of Errors in Data Structures", <i>Proceedings of 18th ACM SIGPLAN Conference on Object-Oriented Programming Systems, Language and Applications (OOPSLA)</i> (October 2003), pages 78-95.	
		Demsky et al., "Role-Based Exploration of Object-Oriented Programs", <i>Proceedings of 24th International Conference on Software Engineering (ISCE)</i> (May 2002), pages 313-334.	
		Dor et al., "Cleanness Checking of String Manipulations in C Programs via Integer Analysis", <i>Proc. 8th Int'l Static Analysis Symposium</i> (June 2001), 19 pages.	
		Dor et al., "CSSV: Towards a Realistic Tool for Statically Detecting All Buffer Overflows in C", <i>PLDI'03</i> (June 9-11, 2003), pp. 155-167.	
		Duesterwald et al., "Software profiling for hot path prediction: Less is more," <i>Ninth International Conference on Architectural Support for Programming Languages and Operating Systems</i> (November 2000), pages 202-211.	
		Edwards, "Black-Box Testing Using Flowgraphs: An Experimental Assessment of Effectiveness and Automation Potential", <i>Software Testing, Verification and Reliability</i> , Vol. 10, No. 4 (December 2000), pages 249-262.	
		Eeckhout et al., "Workload Design: Selecting Representative Program-Input Pairs", <i>Proceedings of the 2002 International Conference on Parallel Architectures and Compilation Techniques</i> (2002), 12 pages.	
		Ernst, "Dynamically Discovering Likely Program Invariants", <i>PhD Thesis, University of Washington</i> (August 2000), pages 1-127.	
		Evans et al., "Improving Security Using Extensible Lightweight Static Analysis", <i>IEEE Software</i> (January/February 2002), pages 42-51.	
		Evans et al., "LCLint: A Tool for Using Specifications to Check Code", <i>SIGSOFT Symposium on the Foundations of Software Engineering</i> (December 1994), 10 pages.	
		Evans et al., "Splint Manual, Version 3.1.1-1", <i>Secure Programming Group, University of Virginia Department of Computer Science</i> (June 5, 2003), 121 pages.	
		Evans, "Static Detection of Dynamic Memory Errors", <i>SIGPLAN Conf. on Programming Language and Design Implementation</i> (May 1996), 10 pages.	
		Evans, "Using Specifications to Check Source Code", <i>TR-628, MIT Lab for Computer Science</i> (June 1994), 97 pages.	

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		Foster et al., "A Theory of Type Qualifiers", <i>Proc. ACM SIGPLAN '99 Conf. on Programming Language and Design Implementation (PLDI)</i> (May 1999), 12 pages.	
		Guyer et al., "An Annotation Language for Optimizing Software Libraries", <i>Proc. Second Conf. on Domain Specific Languages</i> (October 1999), 14 pages.	
		Hangal et al., "Tracking Down Software Bugs Using Automatic Anomaly Detection", <i>Proceedings of 22nd International Conference on Software Engineering (ICSE)</i> (January 1992), pages 125-136.	
		Harris, "Dynamic Adaptive Pre-tenuring", <i>Proceedings of the International Symposium on Memory Management</i> (Oct 2000), 9 pages.	
		Hastings et al., "Purify: Fast Detection of Memory Leaks and Access Errors", <i>Proceedings of the Winter 1992 USENIX Conference</i> (1992), 10 pages.	
		Heil et al., "Relational Profiling: Enabling Thread-Level Parallelism in Virtual Machines", <i>Proc. 33rd International Symposium on Microarchitecture</i> (Dec 2000), pages 1-10.	
		Hirzel et al., "Understanding the Connectivity of Heap Objects", <i>Proceedings of International Symposium on Memory Management (ISMM)</i> (June 2002), pages 143-156.	
		Hollingsworth et al., "MDL: A Language and Compiler for Dynamic Program Instrumentation", <i>Proc. Of the International Conference on Parallel Architectures and Compilations Techniques</i> (November 1997), 12 pages.	
		Hölzle et al., "Reconciling Responsiveness with Performance in Purse Object-Oriented Languages", <i>ACM Transactions on Programming Languages and Systems</i> (July 1996), pages 1-40.	
		Horning, "The Larch Shared Language: Some Open Problems", <i>Compass/ADT Workshop</i> (September 1995), 16 pages.	
		Joseph et al., "Prefetching Using Markov Predictors", ACM (1997), pages 252-263.	
		Jouppi, "Improving Direct-Mapped Cache Performance by the Addition of a Small Fully-Associative Cache and Prefetch Buffers", IEEE (1990), pages 364-373.	
		"JProfiler Manual," ejtechnologies, GmbH (2004), pages 1-141.	
		Karlsson et al., "A Prefetching Technique for Irregular Accesses to Linked Data Structures", <i>Sixth International Symposium on High-Performance Computer Architecture</i> (January 2000), 12 pages.	
		Khurshid et al., "An Analyzable Annotation Language," <i>OOPSLA '02</i> (November 2002), 15 pages.	
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		Klaiber et al., "An Architecture for Software-Controlled Data Prefetching", ACM (1991), pages 43-53.	
		Kramer, "Examples of Design by Contract in Java Using Contract, the Design by Contract™ Tool for Java™", <i>Object World Berlin '99, Design & Components</i> (May 17-20, 1999), 26 pages.	
		Larochelle et al., "Statistically Detecting Likely Buffer Overflow Vulnerabilities", <i>2001 USENIX Security Symposium</i> (August 2001), 5 pages.	
		Larus, "Whole Program Paths," <i>SIGPLAN '99 Conference on Programming Languages and Design</i> (1999), 11 pages.	
		Leavens et al., "Enhancing the Pre-and Postcondition Technique for More Expressive Specifications", <i>Proc. World Congress on Formal Methods in the Development of Computing Systems</i> (September 1999), 21 pages.	
		Leavens et al., "Preliminary Design of JML", <i>Technical Report 98-06v, Iowa State University Department of Computer Science</i> (June 1998-2003; revised May 2003), 94 pages.	
		Leino, "Checking Correctness Properties of Object-Oriented Programs," <i>Internet</i> , http://research.microsoft.com/leino/paper/1 (August 19, 2002), 49 pages.	
		Luk et al., "Compiler-Based Prefetching for Recursive Data Structures", ACM (1996), pages 222-233.	
		Melski et al., "Interprocedural Path Profiling", <i>University of Wisconsin</i> (1998), pages 1-50.	
		Microsoft Corporation, "Scalable Program Analysis", <i>Internet</i> , http://research.microsoft.com/spa/ (downloaded on September 5, 2003), 3 pages.	
		Mowry et al., "Design and Evaluation of a Compiler Algorithm for Prefetching", ACM (1992), pages 62-73.	
		Mowry et al., "Predicting Data Cache Misses in Non-Numeric Applications Through Correlation Profiling", <i>International Symposium on Microarchitecture</i> (1997), 7 pages.	
		Nevill-Manning et al., "Identifying Hierarchical Structure in Sequences: A Linear-time Algorithm", <i>Journal of Artificial Intelligence Research</i> (1997), 7:67-82.	
		Roth et al., "Dependence Based Prefetching for Linked Data Structures", <i>Proceedings of the 8th International Conference on Architectural Support</i> (Oct 1998), pages 115-126.	
		Roth et al., "Effective Jump-Pointer Prefetching for Linked Data Structures", IEEE (1999), pages 111-121.	

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		Saavedra et al., "Improving the Effectiveness of Software Prefetching With Adaptive Execution", <i>IEEE</i> (1996), pages 68-78.	
		Sastry et al., "Rapid Profiling Via Stratified Sampling", <i>International Symposium on Computer Architecture</i> (2001), pages 1-12.	
		Savage et al., "Eraser: a dynamic data race detector for multithreaded programs", <i>ACM Transactions on Computer Systems (TOCS)</i> (1997), 391-411.	
		Srivastava et al., "Vulcan Binary Transformation in a Distributed Environment", <i>Microsoft Research, MSR-TR-99-76</i> (April 20, 2001), pages 1-12.	
		Stoutchinin et al., "Speculative Prefetching of Induction Pointers", <i>Proceedings of 10th International Conference on Compiler Construction</i> (2001), 15 pages.	
		"Technologies for Measuring Software Performance", <i>Intel Corporation</i> (2003), 4 pages.	
		Traub et al., "Ephemeral instrumentation for lightweight program profiling", <i>Technical report</i> , Harvard University (2000), pages 1-13.	
		Vanderwiel et al., "Data Prefetch Mechanisms", <i>ACM Computing Surveys</i> , Vol. 32, No. 2 (June 2000), pages 174-199.	
		Wahls et al., "The Direct Execution of SPECS-C++: A Model-Based Specification Language for C++ Classes", <i>Technical Report TR94-02b, Iowa State University Department of Computer Science</i> (November 18, 1994), 52 pages.	
		Zhou et al., "AccMon: Automatically Detecting Memory-Related Bugs via Program Counter-Based Invariants," <i>Proceedings of 37th International Symposium on Micro-Architecture (MICRO)</i> (December 2004).	
		Zilles et al., "A Programmable Co-processor for Profiling", <i>Proceedings of the 7th International Symposium on High Performance Architecture</i> (Jan 2001), 12 pages.	

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